

The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/ AU

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:

The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty.

For International Preliminary Examining Authority use only		
Identification of IPEA		Date of receipt of DEMAND
Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION		Applicant's or agent's file reference AY/2005.1846
International application No. PCT/SG2005/000106	International filing date (day/month/year) 01 April 2005 (01.04.2005)	(Earliest) Priority date (day/month/year) 02 April 2004 (02.04.2004)
Title of invention LOCATING A MID-SAGITTAL PLANE		
Box No. II APPLICANT(S)		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH 20 Biopolis Way, #07-01 Centros Singapore 138668		Telephone No. (65) 6826 6300 Facsimile No. (65) 6339 4612 Teleprinter No. Applicant's registration No. with the Office
State (that is, country) of nationality: Singapore (SG)		State (that is, country) of residence: Singapore (SG)
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) K. N. Bhanu Prakash Block 305 #06-419 Clementi Ave 4, Singapore 120305		
State (that is, country) of nationality: India (IN)		State (that is, country) of residence: Singapore (SG)
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) VOLKAU, Ihar 6 Jalan Lempeng, #12-03 Singapore 128795		
State (that is, country) of nationality: Russia (RU)		State (that is, country) of residence: Singapore (SG)
<input checked="" type="checkbox"/> Further applicants are indicated on a continuation sheet.		

Sheet No. 2

International application No.
PCT/SG2005/000106

Continuation of Box No. II APPLICANT(S)

*If none of the following sub-boxes is used, this sheet should not be included in the demand.*Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

NOWINSKI, Wieslaw Lucjan
111 Clementi Road,
#10-06 NUS, Kent Vale Blk C,
Singapore 129792

State *(that is, country)* of nationality:

Poland (PL)

State *(that is, country)* of residence:

Singapore (SG)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*State *(that is, country)* of nationality:State *(that is, country)* of residence:Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*State *(that is, country)* of nationality:State *(that is, country)* of residence:Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*State *(that is, country)* of nationality:State *(that is, country)* of residence:☐ Further applicants are indicated on another continuation sheet.

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The following person is ☒ agent ☐ common representativeand ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to, the agent(s)/common representative appointed earlier.Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*YU SARN AUDREY & PARTNERS
190 Middle Road, #12-04
Singapore 188979

Telephone No.

(65) 6358 2865

Facsimile No.

(65) 6358 2864

Teleprinter No.

Agent's registration No. with the Office

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION

Statement concerning amendments:*

1. The applicant wishes the international preliminary examination to start on the basis of:

☐ the international application as originally filedthe description ☒ as originally filed☐ as amended under Article 34the claims ☒ as originally filed☐ as amended under Article 19 (together with any accompanying statement)☐ as amended under Article 34the drawings ☒ as originally filed☐ as amended under Article 342. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.3. ☐ Where the IPEA wishes to start the international preliminary examination at the same time as the international search in accordance with Rule 69.1(b), the applicant requests the IPEA to postpone the start of the international preliminary examination until the expiration of the applicable time limit under Rule 69.1(d).4. ☐ The applicant expressly wishes the international preliminary examination to start earlier than at the expiration of the applicable time limit under Rule 54bis.1(a).

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English

☒ which is the language in which the international application was filed.☐ which is the language of a translation furnished for the purposes of international search.☐ which is the language of publication of the international application.☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.

Box No. V ELECTION OF STATES

The filing of this demand constitutes the election of all Contracting States which are designated and are bound by Chapter II of the PCT.

GG:G WD 98.8331 5041

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- | | | |
|--|---|----------|
| 1. translation of international application | : | sheets |
| 2. amendments under Article 34 | : | sheets |
| 3. copy (or, where required, translation) of amendments under Article 19 | : | sheets |
| 4. copy (or, where required, translation) of statement under Article 19 | : | sheets |
| 5. letter | : | 2 sheets |
| 6. other (specify) Response to Written Opinion | : | 3 sheets |

For International Preliminary Examining Authority use only
received not received

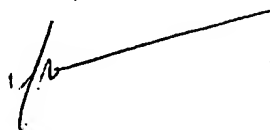
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The demand is also accompanied by the item(s) marked below:

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> fee calculation sheet | 5. <input type="checkbox"/> statement explaining lack of signature |
| 2. <input type="checkbox"/> original separate power of attorney | 6. <input type="checkbox"/> sequence listing in electronic form |
| 3. <input type="checkbox"/> original general power of attorney | 7. <input type="checkbox"/> tables in electronic form related to a sequence listing |
| 4. <input type="checkbox"/> copy of general power of attorney; reference number, if any: | 8. <input type="checkbox"/> other (specify): |

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).


YU SARN AUDREY & PARTNERS
Agent

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply.
☐ The applicant has been informed accordingly.
4. ☐ The date of receipt of the demand is WITHIN the time limit of 19 months from the priority date as extended by virtue of Rule 80.5.
5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

6. ☐ The date of receipt of the demand is AFTER the expiration of the time limit under Rule 54bis.1(a) and item 7 or 8, below, does not apply.
7. ☐ The date of receipt of the demand is WITHIN the time limit under Rule 54bis.1(a) as extended by virtue of Rule 80.5.
8. ☐ Although the date of receipt of the demand is after the expiration of the time limit under Rule 54bis.1(a), the delay in arrival is EXCUSED pursuant to Rule 82.

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Demand received from IPEA on:

CHAPTER II

PCT

FEE CALCULATION SHEET

Annex to the Demand

<p>International application No. PCT/SG2005/000106</p> <p>Applicant's or agent's file reference AY/2005.1846</p>	<p>For International Preliminary Examining Authority use only</p> <p>Date stamp of the IPEA</p>								
<p>Applicant</p> <p>AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH</p>									
<p>CALCULATION OF PRESCRIBED FEES</p> <p>1. Preliminary examination fee AUD 550 P</p> <p>2. Handling fee (<i>Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.</i>) AUD 205 H</p> <p>3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box AUD 755</p> <div style="border: 1px solid black; padding: 2px; text-align: center;"> TOTAL </div>									
<p>MODE OF PAYMENT</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> authorization to charge deposit account with the IPEA (see below)</td> <td><input type="checkbox"/> cash</td> </tr> <tr> <td><input type="checkbox"/> cheque</td> <td><input type="checkbox"/> revenue stamps</td> </tr> <tr> <td><input type="checkbox"/> postal money order</td> <td><input type="checkbox"/> coupons</td> </tr> <tr> <td><input type="checkbox"/> bank draft</td> <td><input checked="" type="checkbox"/> other (specify): Direct transfer to IP Australia Account</td> </tr> </table>		<input type="checkbox"/> authorization to charge deposit account with the IPEA (see below)	<input type="checkbox"/> cash	<input type="checkbox"/> cheque	<input type="checkbox"/> revenue stamps	<input type="checkbox"/> postal money order	<input type="checkbox"/> coupons	<input type="checkbox"/> bank draft	<input checked="" type="checkbox"/> other (specify): Direct transfer to IP Australia Account
<input type="checkbox"/> authorization to charge deposit account with the IPEA (see below)	<input type="checkbox"/> cash								
<input type="checkbox"/> cheque	<input type="checkbox"/> revenue stamps								
<input type="checkbox"/> postal money order	<input type="checkbox"/> coupons								
<input type="checkbox"/> bank draft	<input checked="" type="checkbox"/> other (specify): Direct transfer to IP Australia Account								
<p>AUTHORIZATION TO CHARGE (OR CREDIT) DEPOSIT ACCOUNT (This mode of payment may not be available at all IPEAs)</p> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><input type="checkbox"/> Authorization to charge the total fees indicated above.</p> <p><input type="checkbox"/> (This check-box may be marked only if the conditions for deposit accounts of the IPEA so permit) Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.</p> </td> <td style="width: 50%; vertical-align: top;"> <p>IPEA/ _____</p> <p>Deposit Account No.: _____</p> <p>Date: _____</p> <p>Name: _____</p> <p>Signature: _____</p> </td> </tr> </table>		<p><input type="checkbox"/> Authorization to charge the total fees indicated above.</p> <p><input type="checkbox"/> (This check-box may be marked only if the conditions for deposit accounts of the IPEA so permit) Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.</p>	<p>IPEA/ _____</p> <p>Deposit Account No.: _____</p> <p>Date: _____</p> <p>Name: _____</p> <p>Signature: _____</p>						
<p><input type="checkbox"/> Authorization to charge the total fees indicated above.</p> <p><input type="checkbox"/> (This check-box may be marked only if the conditions for deposit accounts of the IPEA so permit) Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.</p>	<p>IPEA/ _____</p> <p>Deposit Account No.: _____</p> <p>Date: _____</p> <p>Name: _____</p> <p>Signature: _____</p>								

10/586376

INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY
AUSTRALIAN PATENT OFFICE

AP 2005/000106 PCT/PTO 13 JUL 2006

APPLICANT : AGENCY FOR SCIENCE,
TECHNOLOGY AND RESEARCH

TITLE OF INVENTION : LOCATING A MID-SAGITTAL
PLANE

INTERNATIONAL APPLICATION NO. : PCT/SG2005/000106

INTERNATIONAL FILING DATE : 01 APRIL 2005

PRIORITY DATE : 02 APRIL 2004

EXAMINER : ANDREA HADLEY

ATTORNEY DOCKET NO. : AY/MT/gk/2005.1846

Australian Patent Office
PO BOX 200
WODEN ACT
2606
AUSTRALIA

RESPONSE TO WRITTEN OPINION

Dear Sir:

In response to the Written Opinion dated 16 June 2005, please consider the following.

REMARKS:

Claims 1-29 are pending in this application.

The Examiner has indicated that claims 1-10 and 14-29 are considered to be novel, to include an inventive step and to have industrial applicability. Additionally, the Examiner has indicated that claims 11-13 have industrial applicability. However, the Examiner has indicated that claims 11-13 lack both novelty and inventive step in view of (a) "Automatic Extraction of the Central Symmetry (MidSagittal) Plane from Neuroradiology Images" Yanxi Liu et al., The Robotics Institute, Carnegie Mellon University, Pittsburgh, PA, USA, 1996; (b) "Robust Midsagittal Plane Extraction from Normal and Pathological 3-D Neuroradiology Images" Yanxi Liu et al., IEEE Transactions on Medical Imaging, Vol. 20, No. 3, March 2001, Pages 175-191; (c) WO 2003/060827 A1; and (d) "Computation of the Mid-Sagittal Plane in 3-D Brain Images" S. Prima et al, IEEE Transactions on Medical

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February 1, 2006

Imaging, Vol. 21, No. 2, February 2002, Pages 122-138. The Examiner has cited (e) WO 2004/034178 A2 as a document defining the general state of the art, but not considered to be of particular reference.

Claims 11-13 relate to finding an optimized mid-sagittal plane. More particularly, an initial guess (a candidate mid-sagittal plane) is determined in claim 11 and the candidate mid-sagittal plane is used in claim 13 in an optimization technique to produce an optimized mid-sagittal plane. Claim 11 specifies that brain volume data is obtained for a plurality of slices, where the plurality of slices "is generally oriented parallel to a sagittal plane" (emphasis added). The candidate mid-sagittal plane is one of the obtained slices.

By contrast, bilateral symmetry is relied upon in the method of automatically detecting and explicitly representing the mid-sagittal plane of reference (a). It is submitted that slices of brain volume data oriented parallel to a sagittal plane would not exhibit bilateral symmetry and would not be of use in the method described in reference (a). According to the abstract of reference (a), the slices used are oriented parallel to an axial plane. Analysis of multiple axial slices leads to determination of a mid-sagittal plane.

Reference (b), which has the same authorship as reference (a), discloses a mid-sagittal plane extraction method that uses slices that are, again, axially-oriented (see section III., part B). Analysis of multiple axial slices leads to determination of a mid-sagittal plane. The method disclosed involves finding an orientation of an axis of symmetry in a slice. It is submitted that slices of brain volume data oriented parallel to a sagittal plane would not exhibit an axis of symmetry and would not be of use in the method described in reference (b).

In reference (c), in particular, at page 13, lines 14-28, the slices that are processed to locate a mid-sagittal plane are described as being generally oriented parallel to an axial plane. There is no disclosure or suggestion of using the method disclosed in (c) for sagittally-oriented slices. Indeed, it appears as though the method of approximating fissure line segments and calculating a plane equation from the fissure line segments would not function correctly if sagittally-oriented slices were used in place of axially-oriented slices.

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Application No.: PCT/SG2005/000106
Response to Written Opinion
Page 3 of 3

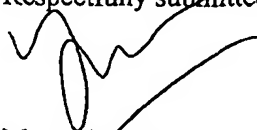
AP20 Rec'd PCT/PTO 13 JUL 2006
February 1, 2006

Furthermore, reference (d) does not appear to involve slices of brain volume data to find an initial guess for the mid-sagittal plane. Instead, an initial guess is made of the mid-sagittal plane and a block matching procedure is used in conjunction with identification of homologous blocks in the entire volume. In contrast with claim 11, determining an initial guess of the mid-sagittal plane does not involve "determining a measure for each slice". Instead, the central plane of the image grid is used as the initial guess (see section I, part C).

In view of the above arguments, it is respectfully submitted that claim 11 meets the PCT requirements for novelty, inventive step and industrial applicability. Furthermore, it is respectfully submitted that claims 12 and 13, which are dependent upon claim 11, also meet the PCT requirements for novelty, inventive step and industrial applicability.

In view of the forgoing, it is respectfully requested that the Examiner make a finding of novelty and inventive step with regard to claims 11-13.

Respectfully submitted,



Ms Audrey Yap

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